

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 18 MAR 1931

Date of writing Report 10. 2. 1931. When handed in at Local Office 14. 3. 1931 Port of GLASGOW.

No. in Survey held at GLASGOW AND GREENOCK. Date, First Survey 24. 12. 30 Last Survey 5 - 3 - 1931
Reg. Book. (Number of Visits.....11.....)91519 on the M.V. "MACDHUI." Tons { Gross 4561
Net 2626

Built at GLASGOW. By whom built BARCLAY CURLE & CO. LTD. Yard No. 644 When built 1931

Owners BURNS PHILLIP & CO. LTD. Port belonging to SYDNEY.

Electric Light Installation fitted by THE SUNDERLAND FORGE & ENG. CO. LTD. Contract No. 644 When fitted 1931

Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution Double wire

Pressure of supply for Lighting 220 volts, Heating 220 volts, Power 220 volts.

Direct or Alternating Current, Lighting Direct Power Direct

If alternating current system, state frequency of periods per second

Has the Automatic Governor been tested and found efficient when the whole load is suddenly thrown on or off Yes

Generators, do they comply with the requirements regarding rating Yes, are they compound wound Yes

are they over compounded 5 per cent. Yes, if not compound wound state distance between each generator

Where more than one generator is fitted are they arranged to run in parallel Yes, is an adjustable regulating resistance fitted in series with each shunt field Yes

Are all terminals accessible, clearly marked, and furnished with sockets. Yes, are they so spaced or shielded that they cannot be accidentally earthed, short circuited, or touched Yes Are the lubricating arrangements of the generators as per Rule Yes

Position of Generators Port Side of Main Engine Room

is the ventilation in way of the generators satisfactory Yes, are they clear of all inflammable material Yes

if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the generators and, are the generators protected from mechanical injury and damage from water, steam or oil Yes

are their axes of rotation fore and aft Yes

Earthing, are the bedplates and frames of the generating plant efficiently earthed Yes are the prime movers and their respective generators in metallic contact Yes

Main Switch Boards, where placed Port Side of Engine Room at Main Deck

If the generators and main switchboard are not placed in the same compartment, is each generator provided with a fuse on each insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard

Switchboards, are they placed in accessible positions, free from inflammable gases and acid fumes Yes

are they protected from mechanical injury and damage from water, steam or oil Yes, if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the switchboards and

are they constructed wholly of durable, non-ignitable non-absorbent materials Yes, is all insulation of high dielectric strength and of permanently high insulation resistance Yes, if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework Yes

and is the frame effectively earthed Yes Are the fittings as per Rule regarding:— spacing or shielding of live parts

Yes, accessibility of all parts Yes, absence of fuses on back of board Yes, proportion of omnibus bars Yes, individual fuses to voltmeter, pilot or earth lamp Yes, connections of switches Yes

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches Triple Pole Overload

Time Lag & Reverse Current Circuit Breakers for Each Main Generator. (3rd Pole acting as Equaliser). Double Pole Change over

Switch & Fuses for Steering Gear Motors & Bakers Oven. all other outgoing circuits having a Double Pole Switch & Fuses with

exception of Switch Ring Mains which have Double Pole Overload & Time Lag Circuit Breakers.

Instruments on main switchboard 4 for Amps ammeters 4 voltmeters synchronising device for paralleling purposes.

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system Earth Lamp switch

& Fuse on each pole

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules Yes

Joint Boxes Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule Yes



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Lloyd's Register
Foundation

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Cable Sockets and other connections, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets

[Cable Runs, are the cables fixed as far as possible in accessible positions not exposed to drip or accumulation of water or oil, or to high temperature from boilers, steam pipes, uptakes or other hot objects, or to avoidable risk of mechanical damage. *Leo*

If cables are run in wood casings, are the casings and caps secured by screws Yes, are the cap screws of brass Yes, are the cables run in separate grooves Yes. If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table VIII Yes.

Joints in Cables, state if any, and how made, insulated, and protected. *None made*

..... Leo

Earthing Connections, state what earthing connections are fitted and their respective sectional areas *The metallic sheathing and heating*
armouring of all cables led into all lights, fuse boxes and power units efficiently
bonded by means of special clips or brass bonding glands and their connections made as per Rule 45.

Emergency Supply, state position and method of control of the emergency supply and how the generator is driven. **Emergency Switchboard in**
Emergency Dynamo House having a double pole c/o switch & fuses controlling supply from an emergency
generator fed r from Main 220 Volt Switchboard. Emergency Generator driven by a vertical heavy oil engine.

has each navigation lamp an automatic indicator as per Rule..... *Yes*

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight. Yes
are any fittings placed in spaces in which goods are liable to be stacked in close proximity to them ; if so, how are they protected. By 2 bar iron guards.

how are the cables led

Searchlight Lamps, No. of —, whether fixed or portable only, are their fittings as per Rule —.

Arc Lamps, other than searchlight lamps, No. of —, are their live parts insulated from the frame or case —, are their fittings as per Rule —

Motors, are their working parts readily accessible..... Yes..... are the coils self-contained and readily removable for replacement..... Yes.....

are the brushes, brush holders, terminals and lubricating arrangements as per Rule 250, are the motors placed in well-ventilated compartments in which

inflammable gases cannot accumulate and clear of all inflammable material *Leo*

are they protected from mechanical injury and damage from water, steam or oil Yes are their axes of rotation fore and aft Yes

if situated near unprotected woodwork or other combustible material, are the motors of the totally enclosed, pipe ventilated, forced draught, drip or flame proof type

if not of this type, state distance of the combustible material horizontally or vertically above the motors _____ and _____

Control Gear and Resistances. are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule 250

Lightning Conductors, where lightning conductors are required, are these fitted as per Rule

Ships carrying Oil having a Flash Point less than 150° F. Have the special requirements of the Rules been complied with regarding switches, joint boxes

section and distribution boards, protection of cables, method of distribution, lead of cables, lights and fittings

If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office —

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amperes.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	4.	130.	220.	59.	400.	Diesel Oil Engine	burnt oil	over 160° F.
AUXILIARY	—							
EMERGENCY	1	24.	220.	109.	1050	Heavy Oil Engine	—	over 150° F.
ROTARY TRANSFORMER	—							

GENERATOR, LIGHTING AND HEATING CONDUCTORS.									
DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR	2	.49300	37	.093	591 ✓	613	240	Varnished Cambric	Lead Covered and Braided
EQUALISER CONNECTIONS ...	1	.24650	37	.093	295.5 ✓	307	60	Varnished Cambric	Lead Covered & Braided
AUXILIARY GENERATOR...	—	—	—	—	—	—	—	—	—
EMERGENCY GENERATOR ...	1	.10090	19	.083	109 ✓	118	20	V.I.R.	Lead Covered armoured & Braided
ROTARY	—	—	—	—	—	—	—	—	—
TRANSFORMER } MOTOR	—	—	—	—	—	—	—	—	—
GENERATOR... }	—	—	—	—	—	—	—	—	—
ENGINE ROOM... ..	1	.00701	7	.036	13.7 ✓	24	112	V.I.R.	Lead Covered armoured & Braided
BOILER ROOM... ..	—	—	—	—	—	—	—	—	—
EMERGENCY SWITCHBOARDS ...	1	.10090	19	.083	109 ✓	118	130	V.I.R.	Braided
Geno Room	1	.00701	7	.036	17.6 ✓	24	50	V.I.R.	Braided
Officers & Eng's Accom.	1	.00701	7	.036	18.2 ✓	24	50	V.I.R.	Braided
Navigation	1	.00468	7	.029	45.3 ✓	18.2	288	V.I.R.	Braided
Emergency Lighting	1	.00701	7	.036	14.2 ✓	24	128	V.I.R.	Braided
Emergency Book Etc	1	.00299	3	.086	6.2 ✓	12	20	V.I.R.	Lead Covered & Braided
Accommodation	1	.06000	19	.064	76.8 ✓	83	50	V.I.R.	Braided
Galley Gear	1	.10090	19	.083	108.14 ✓	118	224	V.I.R.	Braided
Baker Oven	1	.06000	19	.064	76.7 ✓	83	230	V.I.R.	Braided
WIRELESS	1	.01046	7	.044	25 ✓	31	270	V.I.R.	Braided
SEARCHLIGHT	1	.03960	19	.052	60 ✓	64	160	V.I.R.	Braided
MASTHEAD LIGHT	1	.0094	3	.029	18 ✓	7.8	350	V.I.R.	Braided in 3/8 Pipe up Mast
SIDE LIGHTS	1	.0094	3	.029	18 ✓	7.8	110	V.I.R.	Braided in 3/8 Pipe
COMPASS LIGHTS	1	.0094	3	.029	19 ✓	7.8	30	V.I.R.	Braided
POOP LIGHTS	1	.00299	3	.086	2.5 ✓	12	288	V.I.R.	Braided
CARGO LIGHTS	1	.00701	7	.036	14.5 ✓	24	50	V.I.R.	Braided
ARC LAMPS	—	—	—	—	—	—	—	—	—
HEATERS	1	.11680	37	.064	127 ✓	130	50	V.I.R.	Braided

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate length. (Load and Return.) Feet.	Insulated with.	HOW PROTECTED.
		No. Per Pole.	Total Effective Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP	1	1	.07692.	19	.072.	94 ✓	94.	198	VIR.	Lead Covered
REPAIRING PUMP 3.	1	1	.00701.	7	.036.	18.8 ✓	24.	12.8	VIR.	Copperwired & Braided
MAIN DRAIN LINE PUMPS	1	1	.03960.	19	.052 ✓	57 ✓	64.	152.	VIR.	Copperwired & Braided
EMERGENCY FIRE PUMP	1	1	.01462.	7	.052.	37.	37.	280.	VIR.	Lead Covered
GENERAL SERVICE PUMP	1	1	.03960.	19	.052 ✓	57 ✓	64.	192.	VIR.	Copperwired & Braided
EMERGENCY BILGE PUMP	2.	1	.01692.	19	.052.	91 ✓	94.	136.	VIR.	Lead Covered
SANITARY PUMP & Bilge.	1	1	.01692.	19	.052.	91 ✓	94.	136.	VIR.	Copperwired & Braided
CIRC. SEA WATER PUMPS	1	1	.01692.	19	.052.	91 ✓	94.	136.	VIR.	Lead Covered
CIRC. SEA & F.W. PUMP	1	1	.01692.	19	.052.	91 ✓	94.	136.	VIR.	Copperwired & Braided
CIRC. FRESH WATER PUMPS	1	1	.01692.	19	.052.	91 ✓	94.	136.	VIR.	Lead Covered
REFUG COMPRESSOR	1	1	.24650	37	.093.	153 ✓	214	80.	VIR.	Copperwired & Braided
FRESH WATER PUMP	2.	1	.00701.	7	.036.	15 ✓	24	185.	VIR.	Lead Covered
ENGINE TURNING GEAR.	1	1	.02214.	7.	.064.	40.3 ✓	46.	96.	VIR.	Copperwired & Braided
REPAIRING CIRCULATING PUMP	1	1	.00701.	7	.036.	18.8 ✓	24	140.	VIR.	Lead Covered
ENGINE CIRCULATING PUMP	2.	1	.10090	19	.053.	108 ✓	118	125.	VIR.	Copperwired & Braided
LUBRICATING OIL PUMPS	2.	1	.00701.	7	.036.	22 ✓	24	156.	VIR.	Lead Covered
OIL FUEL TRANSFER PUMP	1	1	.19640.	37	.083.	220 ✓	247	100.	VIR.	Copperwired & Braided
WINDLASS	4	1	.10090	19	.083	120 ✓	124	60	VIR.	Braided
WINCHES, FORWARD	2.	2.	.39250	37	.053.	240 ✓	247	370	VIR.	Lead Covered
WINCHES, AFT	2.	1	.10090	19	.083.	120 ✓	124	60	VIR.	Copperwired & Braided
ENGINE MAIN	2.	2.	.39250	37	.053.	240 ✓	247	370	VIR.	Lead Covered
STEERING GEAR	2.	1	.10090	19	.083.	120 ✓	124	60	VIR.	Copperwired & Braided
(a) MOTOR GENERATOR...	2.	1	.03960.	19	.052.	57 ✓	64	352.	VIR.	Lead Covered
(b) MAIN MOTOR	1/0	1	.00701.	7	.036.	13.5 ✓	24	60	VIR.	Copperwired & Braided
WORKSHOP MOTOR	4	1	.06000.	19	.064.	57 ✓	83	192.	VIR.	Lead Covered
VENTILATING FANS AFT.	2.	1	.06000	19	.064.	38 ✓	83	212.	VIR.	Copperwired & Braided
Oil Purifier Pump	1	1	.00701.	7	.036.	14. ✓	24	122.	VIR.	Lead Covered
Hot & Cold Water Pump.	2.	1	.00299	3	.036.	5.0 ✓	12.0	48	VIR.	Copperwired & Braided
Galley Range Blowers.	1	1	.00299	3	.036.	5.0 ✓	12.0	48	VIR.	Braided in 93 pipe
See Cream Freezer	1	1	.00299	3	.036.	5.0 ✓	12.0	48	VIR.	Braided in 93 pipe
Daugh Mincer	1	1	.00299	3	.036.	5.0 ✓	12.0	48	VIR.	Braided in 93 pipe
Knife Cleaner	1	1	.00299	3	.036.	5.0 ✓	12.0	48	VIR.	Braided in 93 pipe
Hoist.	1	1	.00299	3	.036.	5.0 ✓	12.0	48	VIR.	Braided in 93 pipe

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All Conductors are of annealed copper conforming to British Standard Specification No. 7.

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

p. pro. THE SUNDERLAND FORCE & ENG. CO. LTD.

Electrical Engineers.

Date 14.2.31.

COMPASSES.

Distance between electric generators or motors and standard compass 106 feet

Distance between electric generators or motors and steering compass 96 feet.

The nearest cables to the compasses are as follows:—

A cable carrying 5.3 Ampères 10 feet from standard compass 10 feet from steering compass.

A cable carrying 18 Ampères 10 feet from standard compass led into feet from steering compass.

A cable carrying 18 Ampères led into feet from standard compass 10 feet from steering compass.

Have the compasses been adjusted with and without the electric installation at work at full power yes

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted yes

The maximum deviation due to electric currents was found to be nil degrees on any course in the case of the standard compass, and nil degrees on any course in the case of the steering compass.

By BARCLAY, CURLE & Co., Limited.

Geo. Barnes.

Builder's Signature.

Date 9/3/31.

Is this installation a duplicate of a previous case? If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.)

This installation has been fitted on board under special survey, tested under full working conditions and found satisfactory. The materials and workmanship were found to be good and sound.

It is submitted that
the vessel should be
THE RECORD

Elec Light

BA 19/3/31

Total Capacity of Generators 544 Kilowatts.

The amount of Fee £ 45:2:0

When applied for, 17 MAR 1931

Travelling Expenses (if any) £ —

When received, 20/3/31

Surveyor's Lloyd's Register of Shipping.

Committee's Minute GLASGOW 17 MAR 1931

Assigned Elec Light



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